AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently amended) A method for the fabrication of a membrane ~~(2)~~ oriented in a (111) plane of a (100) silicon wafer ~~(1)~~, comprising the steps of:

[[-]] applying a masking layer ~~(3)~~ to both sides of the wafer ~~(1)~~, wherein portions ~~(4)~~ of the sides are covered by the masking layer ~~(3)~~; and

[[-]] removing ~~the~~ at least partially removal by etching away silicon material from the portions ~~(5)~~ of the two sides of the wafer ~~(1)~~ that are not covered,

[[-]] wherein the etching step substantially removes the silicon material forming recesses ~~(6,7)~~ in the two surfaces of the wafer ~~(1)~~, such that the walls ~~(8,9, 10,11)~~ of the recesses ~~(6,7)~~ are formed by (111) planes,

[[-]] wherein not covered portions at both sides of the wafer are aligned in relation to one another such that a (111) plane ~~(9 or 10)~~ formed from a first side is oriented parallel to a (111) plane ~~(10 or 9)~~ formed from a second side, and the distance d between said two planes ~~(9, 10)~~ is less than the thickness of the silicon wafer ~~(1)~~, so as to form a membrane ~~(2)~~ in the (111) plane having a thickness d, and

~~characterised in that~~ wherein at least one through-opening ~~(12)~~ is formed by an etching treatment in the membrane ~~(2)~~ oriented in the (111) plane only, with the opening ~~(12)~~ being oriented substantially perpendicularly in relation to the (111) plane ~~(9,10)~~.

2. (Currently amended) A method according to claim 1, ~~characterised in that~~ wherein into both sides of the wafer ~~(2)~~ V-shaped recesses ~~(6, 7)~~ are etched, wherein the lowest point in a V-shaped recess ~~(6,7)~~ in a first side is positioned adjacent to a not covered portion ~~(5)~~ at the other side of the wafer ~~(1)~~.

3. (Currently amended) A method according to ~~one of the preceding~~ claim[[s]] 1, ~~characterised in that~~ wherein a recess ~~(6,7)~~ in a first side reaches up to the masking layer ~~(3)~~ at the second side.

4. (Currently amended) A method according to ~~one of the preceding~~ claim[[s]] 1, ~~characterised in that~~ wherein the thickness d is measured and the etching step is continued to etch the (111) planes ~~(8,9, 10,11)~~ until a desired thickness d is attained.

5. (Currently amended) A method according to ~~one of the preceding~~ claim[[s]] 1, ~~characterised in that~~ wherein after the completion of the etching step, the masking layer ~~(3)~~ is removed.

6. (Currently amended) A method according to ~~one of the preceding~~ claim[[s]] 1, ~~characterised in that~~ wherein said step comprises providing a longitudinal opening ~~(12)~~ that extends through the membrane ~~(2)~~ formed in the (111) plane, wherein the opening ~~(12)~~ extends from the free end ~~(13)~~ of the membrane ~~(2)~~ into the direction of a position ~~(Z)~~ where the membrane ~~(2)~~ is attached to the wafer ~~(1)~~.

7. (Currently amended) A method according to ~~one of the preceding~~ claim[[s]] 1, ~~characterised in that~~ wherein the through-opening ~~(12)~~ is formed by an etching treatment, preferably by means of a dry-etching treatment, preferably a plasma etching treatment.

8. (Currently amended) A method according to ~~one of the~~ claim[[s]] 1 ~~to 6~~, ~~characterised in that~~ wherein the through-opening ~~(12)~~ is formed by radiation with a high-energy source.

9. (Currently amended) A method according to ~~one of the preceding~~ claim[[s]] 1, ~~characterised in that~~ wherein at least two parallel longitudinal openings ~~(12)~~ are formed, oriented substantially perpendicular in relation to the line where the formed membrane ~~(2)~~ is attached to the wafer ~~(1)~~, so as to form at least one cantilever ~~(14)~~.

10. (Currently amended) A membrane ~~(2)~~ for orientation in a (111) plane of a (100) silicon wafer obtained by a method ~~according to one of the claims 1 to 9~~ comprising the steps of:

applying a masking layer to both sides of the wafer, wherein portions of the sides are covered by the masking layer; and

removing at least partially by etching away silicon material from the portions of the two sides of the wafer that are not covered,

wherein the etching step substantially removes the silicon material forming recesses in the two surfaces of the wafer, such that the walls of the recesses are formed by (111) planes,

wherein not covered portions at both sides of the wafer are aligned in relation to one another such that a (111) plane formed from a first side is oriented parallel to a (111) plane formed from a second side, and the distance d between said two planes is less than the thickness of the silicon wafer, so as to form a membrane in the (111) plane having a thickness d, and

wherein at least one through-opening is formed by an etching treatment in the membrane oriented in the (111) plane only, with the opening being oriented substantially perpendicularly in relation to the (111) plane.

11. (Original) An application of a membrane according to claim 10 in a scanning element of a scanning element microscope, scanning probe microscope, or a friction force microscope.

12. (Original) An application of a membrane according to claim 10 in a mirror.

13. (Original) An application of a membrane according to claim 10, wherein a first surface of the (111) plane forms a reflecting surface and the other surface comprises a position-modifying means.

14. (Currently amended) An application of a membrane according to claim 10 in a microgrip, by positioning two membranes in a V-shape such that their ends ~~(13)~~ are oriented towards a mutual point of intersection ~~(S)~~ and are placed at a distance from one another.

15. (Currently amended) An application of a membrane according to claim 10 in a filter system, and provided with at least one opening ~~(12)~~.

16. (Currently amended) An application according to claim 15, wherein at least one side of the wafer ~~(1)~~ is covered with a mask ~~(15)~~, wherein the recesses ~~(6,7)~~ formed at both sides of the membrane ~~(2)~~ are in communication by means of the at least one opening ~~(12)~~.

17. (Currently amended) An application of at least two membranes ~~(2, 2')~~ according to claim 10 arranged in a V-form in a positioning means ~~(18)~~, wherein at least one side of at least one of the membranes ~~(2,2')~~ is provided with an actuator layer ~~(22)~~ for actuating the at least one membrane ~~(2 or 2')~~, to allow an object on the membranes ~~(2,2')~~ to be positioned in a predetermined manner.

18. (Original) An application of a membrane according to claim 10 in a microgripper as pick-and-place mechanism, for picking up objects to be handled, for manipulating and for moving them.

19. (Currently amended) An application of a membrane according to claim 10, of which at least one surface is provided with a sensor layer ~~(22)~~, in a (bio) chemical sensor.

20. (Original) An application of a membrane according to claim 10 in a fuel cell, wherein on the membrane a first electrode is formed, electrically separated from a second electrode by an intermediate layer, and provided with openings to allow fuel to move from an outside of the first electrode to an outside of the second electrode.

21. (Original) An application according to claim 20, wherein the membrane is removed.

22. (Currently amended) An application according to claim 20 ~~or 21~~, wherein the intermediate layer is selected from the group comprising an electrolyte, for example, a solid oxide, a solid polymer, or a proton exchange membrane and a catalyst.

23. (Currently amended) A method according to claim[[s]] 1[[-9]], ~~characterised in that~~ wherein after the membrane ~~(2)~~ has been formed with thickness d, a layer ~~(16)~~ is

applied of a material that exhibits a different etching behaviour than silicon, whereafter the silicon material is at least partly etched away.

24. (Currently amended) A method according to claim 23, ~~characterised in that~~ wherein the layer ~~(16)~~ of the material is applied over at least a portion of the silicon membrane's ~~(2)~~ surface.

25. (Currently amended) A method according to claim 23 ~~or 24~~, ~~characterised in that~~ wherein the material forming the layer ~~(16)~~ is selected from silicon nitride, silicon oxide or silicon carbide.

26. (Currently amended) An application of a membrane obtained by the method according to claim 23 ~~or 24~~, wherein the layer ~~(16)~~ of the material is electrically conductive and has an elongated shape from a first connection point to a second connection point, and forms a heating element, and is connected at the two connecting points to a power source.